

Remarks

The Applicants note with appreciation that the previous rejections have been withdrawn. The Applicants also acknowledge the new rejections based on the newly discovered prior art. However, the Applicants respectfully request that the “finality” of the rejection be withdrawn inasmuch as the Applicants have not previously had an opportunity to address the newly discovered art, whether taken individually or collectively with the previously applied prior art. In that regard, the Applicants respectfully submit that the previous amendments to the claims were made with respect to matters of form and overcoming rejections based on 35 U.S.C. §112. The Applicants accordingly respectfully submit that those amendments did not materially effect the examination of the claims on the merits and did not cause new substantive issues, change the scope of the search or the like. As a consequence, the Applicants respectfully request that the “finality” be withdrawn.

The Applicants have further amended independent Claims 1, 3, 24 and 26 to clarify that the claimed metal layer is a vapor deposited metal layer. Support may be found throughout the Specification as filed, such as in Example 1 and particularly at page 5, line 6. Entry of this amendment into the Official File is respectfully requested.

Turning now to the merits, the Applicants acknowledge the rejection of all of the claims based on the hypothetical combination of Nagai with Ristey. The Applicants respectfully submit that one of ordinary skill in the art would not make such a combination. Moreover, the Applicants respectfully submit that, even if such a hypothetical combination were to be made, the resulting combination would still fail to teach or suggest the invention. Still further, the Applicants respectfully submit that such a hypothetical combination would result in failure.

Ristey discloses a heat-shrinkable film having specific shrinkage properties at certain temperatures in both the machine direction (MD) and transverse direction (TD). In sharp contrast, Nagai does not disclose a heat-shrinkable film. Therefore, one of ordinary skill in the art would not look to Nagai and would further not look to Ristey to make a combination. The reason for this is because the Applicants' claimed laminate film is not a heat-shrinkable film.

The Applicants minimize shrinkage in both the MD and TD directions. The films of the invention have shrinkage properties at 140°C typically on the order of about 8% in the MD direction and about 5% in the TD direction. Films of this degree of shrinkage are widely known to be non-shrinkable films to those of ordinary skill in the art.

In sharp contrast, Ristey's film, which is a heat-shrinkable film, exhibits greater than 15% shrinkage in the MD direction and typically a little less than 10% shrinkage in the TD direction. Also, the MD shrinkage should be at least twice the TD shrinkage at 140°C.

As a consequence of the teaching of Ristey concerning the heat-shrinkable film and considering the fact that the films of the invention are non-heat-shrinkable films, one of ordinary skill in the art would not look to Ristey as the basis for producing a non-heat-shrinkable film. Hypothetically combining Nagai with Ristey does not change this fatal deficiency in Ristey.

In any event, if one of ordinary skill in the art were to make the hypothetical combination, i.e., apply a metallized layer to the heat-shrinkable film of Ristey, the hypothetical resulting laminate would still be a heat-shrinkable film, which is not the Applicants' invention.

Finally, one of ordinary skill in the art would quickly realize that the shrinkage characteristics of the Ristey film, which are highly desired in Ristey, are essentially fatal to attempts to metallize such films. The reasons for this are quite simple. Ristey repeats several times in his disclosure that

high shrinkage is desirable in his films. However, he warns against application of excessive temperatures that the films of his invention could be exposed to by secondary processing such as drying of coatings and inks that might be applied to the films. Such temperatures would likely cause unwanted shrinkage in the films. For example, at Column 24, lines 18 – 23, and Column 26, lines 24 – 30, Ristey teaches that maintaining a film temperature below about 165°C is desirable to avoid altering the shrinkage properties of the film. He also discloses at Column 24, lines 30 – 35, that secondary coatings on his film should be temperature-resistant to 150°C, which are the temperatures used during shrinking of the film. Ristey further discloses at Column 35, lines 54 – 60, that ink-drying temperatures should not be high because they will cause film shrinkage. In that regard, he teaches that the preferred web temperature is about 77°C. This is entirely logical to those of ordinary skill in the art since the object would be to avoid premature heat shrinkage which would thereby render the future heat-shrinkability of the film impossible. Thus, it is clear to those of ordinary skill in the art that, if additional layers are to be applied to the film of Ristey, such applications must occur at low temperatures.

This is sharply contrasted to the metallization described by Nagai and practiced by the Applicants. In that regard, aluminum vapor temperatures are very high, such as around 1500°C. Thus, if the films of Ristey were exposed to aluminum vapor temperatures, the Ristey film would surely exhibit high shrinkage, which would essentially render the Ristey film useless for its further intended use. Such shrinkage could be on the order of 25% or more in the machine direction. Thus, one of ordinary skill in the art would not even attempt to metallize the films of Ristey.

In any event, the result would be a poor metal layer. This would result in the barrier durability properties of the film being extremely poor. This is brought about because the film substrate would shrink under the thermal load during the vapor deposition. However, the aluminum layer itself would not shrink because the aluminum layer would be formed of metal crystals. Thus, the metal layer on a shrinking film would buckle and crack, thereby destroying the highly desirable barrier properties.

There are further reasons why the film of Ristey would simply not work, whether metallized or otherwise. Even if one of ordinary skill in the art were to successfully metallize Ristey's film under the above-described metallizing process conditions that minimize thermal shrinkage of the film, there are secondary processes of adhesive lamination, especially with respect to extrusion lamination. In extrusion lamination, wherein two films are laminated together using a molten extrusion of polyethylene as an adhesive (which is well known to those of ordinary skill in the art), the molten polyethylene is typically at a temperature of 315°C or more. Under such conditions, Ristey's film would begin shrinking significantly as already demonstrated by the significant MD shrinkage at only 140°C. Thus, a metallized layer adhered on Ristey's film, assuming that it could even be done, would also be non-shrinkable and would immediately buckle and crack, thereby destroying any barrier or durable barrier properties.

During adhesive lamination, wherein a solvent or water-borne adhesive undergoes drying, the same phenomenon would likely occur during the drying process if the temperatures were high enough to initiate the shrinking that Ristey cautions against.

Finally, Ristey teaches the importance of incorporating migratory additives into the film for low COF, which is important to the applications for shrink films. However, it should be noted that,

in making high barrier metallized film, the use of migratory additives are highly undesirable. This is because such additives at the surface of the film flash evaporate under the thermal load that metal vapor applies during deposition. The vaporizing additives essentially blow holes throughout the metal layer, thereby compromising the ability to achieve a high barrier metallized film.

As a result of the various and numerous reasons set forth above, the Applicants respectfully submit that one of ordinary skill in the art would not attempt to utilize films of Ristey, would not hypothetically combine Nagai with Ristey and, in any event, would have a reasonable expectation that such a hypothetical combination would result in failure. Withdrawal of the 35 U.S.C. §103 rejection based on the hypothetical combination of Nagai with Ristey is accordingly respectfully requested.

The Applicants acknowledge what is essentially a reverse rejection wherein Ristey is hypothetically combined with Nagai. Unfortunately, this rejection must also fail essentially for many of the reasons set forth above with respect to the reverse rejection. In that regard, Nagai discloses a film that is not a heat-shrinkable film. The Nagai non-heat-shrinkable film is intended to be metallized to provide certain barrier properties. One of ordinary skill in the art would simply not attempt to substitute the heat-shrinkable film of Ristey for the non-heat-shrinkable film of Nagai.

The reasons are, once again, quite simple: taking the heat-shrinkable film of Ristey and substituting it for the non-heat-shrinkable film of Nagai would result in a layer that, upon being metallized, would shrink to a serious degree, thereby causing buckling and cracking of the metal layer which would destroy the intended purpose of the metal layer, thereby rendering it utterly useless for its intended purpose. Accordingly, one of ordinary skill in the art would simply not make the hypothetical combination because there is no motivation to do so and surely there is no reasonable

expectation of success that the hypothetical combination would work.

Moreover, one of ordinary skill in the art would have a reasonable expectation that the properties of the Ristey film, upon being exposed to the metallization process disclosed by Nagai, would likely change because of the relatively extreme temperatures applied to that film. One of ordinary skill in the art would have the reasonable expectation that various of the physical characteristics of that film would change upon such exposure. Accordingly, it is, at best, mere speculation that the claimed physical characteristics would be present in a film of Ristey having been subject to a metallization process. As a consequence, the Applicants respectfully submit that one of ordinary skill in the art would not make the hypothetical combination of Ristey with Nagai. Withdrawal of the 35 U.S.C. §103 rejection based on the hypothetical combination of Ristey with Nagai is respectfully requested.

The Applicants acknowledge the rejection of Claims 22 and 43 over the hypothetical combination of Migliorini or Murschall with Ristey and Nagai. Unfortunately, the further application of Migliorini or Murschall does nothing to cure the fatal deficiencies set forth above with respect to the hypothetical combination of Ristey with Nagai. One of ordinary skill in the art simply would not make the hypothetical combination because there is no motivation or teaching to do so and no reasonable expectation of success. In fact, the Applicants respectfully submit that there would be a reasonable expectation of failure based on the radical differences between the heat-shrinkable film of Ristey and the non-heat-shrinkable film of Nagai. Withdrawal of the rejection of Claims 22 and 43 is respectfully requested.

In light of the foregoing, the Applicants respectfully submit that the entire Application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,



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